No	Information of every IT-21021	
1	Unit name:	Digital Logic Design
2	Code:	IT 21021
3	Classification:	Engineering subject
4	Credit value:	3
5	Semester/ Year Offered:	1/II
6	Pre-requisite:	Digital logic
7	Mode of delivery:	Lecture, Practical, Tutorial
8	Assessment system and breakdown of marks: Practical Tutorial	 30% 10%
	Mid-term/ final Examination	60%
9	Academic staff teaching unit:	Department of Information Technology Engineering
10	Course outcome of unit: In this course, students will be able to a. Introduce the concept of digital and binary systems b. Understand the basic logic operations of NOT ,AND and OR c. Determine Boolean algebra and the Karnaugh map method to a system application d. Analyze the gate networks with Boolean expressions.	
11	Synopsis of unit: IT-21012, 22012 Digital logic Design, The course covers the Digital fundamental (11^{th} edition). The course introduction to Digital Concepts and Numbering Systems: Number and Codes, Binary, Octal, Hexadecimal, Floating Point Number, BCD(overview), Logic Gates and Boolean Algebra, Laws and Rules of Boolean Algebra, Demorgan's Theorem, Karnaugh Maps, Sop and Pos forms, Digital Systems	

	Applications, Implementing Combinational Logic Circuits using Logic gates, Operation with pulse wave forms,Digital Systems Applications, Basic Adders, Parallel Binary Adders, Ripple Carry Versus Look-Ahead Carry Adders, Flip Flops and related Devices.
12	Topic: **1. Introductory Digital Concepts** ▪ Digital and Analog Quantities ▪ Binary Digits, Logic Level, and Digital Waveform ▪ Introduction to Logic Operations ▪ Digital integrated Circuits **2. Number Systems, Operations, and Codes** ▪ Decimal Numbers ▪ Binary Numbers ▪ Decimal-to -Binary Conversion ▪ Binary Arithmetic ▪ 1's and 2's Complements of Binary Numbers ▪ Signed Numbers ▪ Arithmetic Operations with Signed Numbers ▪ Hexadecimal Numbers ▪ Octal Numbers ▪ Binary Coded Decimal (BCD) ▪ Digital Codes **3. Logic Gates** ▪ The Inverter ▪ The AND Gate ▪ The OR Gate ▪ The NAND Gate ▪ The NOR Gate ▪ The Exclusive-OR and Exclusive NOR Gat **4. Boolean Algebra and Logic Simplification** ▪ Boolean Operations and Expressions ▪ Laws and Rules of Boolean Algebra ▪ De Morgan's Theorems

	▪ Boolean Analysis of Logic Circuits ▪ Simplification Using Boolean Algebra ▪ Standard Form of Boolean Expressions ▪ Boolean Expressions and Truth tables ▪ The Karnaugh Map ▪ Karnaugh Map SOP Minimization ▪ Karnaugh Map POS Minimization **5. Combinational Logic** ▪ Basic Combinational Logic Circuits ▪ Implementing Combinational Logic ▪ The Universal property of NAND and NOR Gates ▪ Combinational Logic using NAND and NOR Gates ▪ Logic Circuit Operation with Pulse Waveforms **6. Function of Combinational Logic** ▪ Basic Overview of Logic Functions ▪ Basic Adders ▪ Parallel Binary Adders ▪ Comparators ▪ Decoders ▪ Encoders ▪ Code Converters ▪ Multiplexer(Data Selectors) ▪ Demultiplexers ▪ Parity Generators/Checkers
14	Main references: Digital Fundamental (11th edition), **Floyd**, Thomas L
15	Additional references: Digital Fundamental (10th edition), Floyd, Thomas L

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